DOCUMENT RESUME

ED 294 340 EC 202 507

AUTHOR Friedman, Douglas L.; And Others
TITLE Academic Engagement of Elementary School Children with Learning Disabilities.
PUB DATE Aug 87
NOTE 41p.; Paper presented at the Annual Convention of the American Psychological Association (95th, New York, NY, August 28-September 1, 1987).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Attention Control; *Attention Deficit Disorders; Classroom Observation Techniques; Educational Practices; Elementary Education; *Learning Disabilities; Mainstreaming; Peer Influence; Resource Room Programs; Student Evaluation; Teacher Role; *Time on Task

ABSTRACT

Variability of attention to task and its relation to instructional contexts for learning disabled (LD) children was investigated. Subjects were 24 mainstreamed elementary grade LD children. The children's behaviors relating to academic engagement and the situational contexts in which they occurred were observed and coded in both the regular class and the resource room settings. Significant differences in rate of engagement were found for classroom setting, type of instruction, and level of peer involvement. LD students were more academically engaged: in the resource room than in the regular class; during teacher directed instruction than during seatwork in both settings; and when entire class engagement was high. Results indicated that degree of attending is highly related to the context in which it occurs and is not a fixed quality of the child. Implications for the assessment of attentional problems and instructional practices, especially as related to the resource room program, are discussed. (Author/DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED294340

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Academic Engagement of Elementary School Children with Learning Disabilities

Douglas L. Friedman and Anthony A. Cancelli
Graduate School of Education
Fordham University
Roland K. Yoshida
Department of Educational and Community Programs
Queens College, City University of New York

This paper was presented at the annual convention of the American Psychological Association in August, 1987.
Request for reprints should be sent to Douglas L. Friedman, Graduate School of Education, Fordham University, Lincoln Center, New York, NY 10023.

EC 202507

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Douglas Friedman
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Abstract

Variability of attention-to-task and its relation to instructional contexts for children with learning disabilities was investigated. Twenty-four mainstreamed children were observed in both the regular class and the resource room. Both student behaviors relating to academic engagement and the situational contexts in which they occurred were coded. Significant differences in rate of engagement were found for classroom setting, type of instruction, and level of peer involvement, indicating that degree of attending is related to the context in which it occurs and not a fixed quality of the child. Implications for the assessment of attentional problems and instructional practices, especially as relating to the resource room program, are discussed.

Academic Engagement of Elementary School Children With Learning Disabilities

Experimental and naturalistic studies often demonstrate that children with learning disabilities (LD) have attentional problems. When these children are compared to peers without handicaps, they perform more poorly on a variety of lab tasks and outcome measures related to attending behavior (Cherry & Kruger, 1983; Copeland & Reiner, 1984; Copeland & Wisniewski, 1981; Doyle, Anderson, & Halcomb, 1976; Tarver, Hallahan, Cohen, & Kauffman, 1977; Pelham, 1979), and are on-task less frequently, as reported from a number of classroom observational instruments (Byran Wheeler, 1972; Chow, 1981; McKinney & Feagans, 1980, 1984; Walter 1983). Taken together, the evidence leads to a conception of children with inherent attentional deficits or characteristics (Adelman & Taylor, 1986; Bush & Waugh, 1982; Dykman, Ackerman, Holcomb, & Boudreau, 1983; Garfinkel & Klee, 1985).

Since the findings of the Beginning Teacher Evaluation Study (Fisher et al., 1978), academic engagement has been identified as an important correlate of classroom achievement (Berliner, 1979; Frederick & Walberg, 1980; Greenwood, Delquadri, & Hall, 1984; Smyth, 1984). If children with LD are attending less to task than children

without handicaps, it seems likely that this is one important explanation for their learning less.

However, the assumption of a generalized and stable attentional deficit in children with LD, as the literature suggests, may be unwarranted. Recent findings for academic engagement across type of classroom, kind of instruction, and level of peer involvement seem to indicate that degree of attending behavior for a child classified as LD varies widely, and that this variation is not so much related to characteristics of the child as it is to the classroom context in which the behavior occurs. The notion of significant within child flexibility in attention has important implications not only for understanding the nature of LD, but for the practical problem of remediation as well.

Classroom attending has only been studied in a limited number of contexts, though, and then only infrequently. To date, classroom setting (regular class versus resource room) has been the most frequently investigated environmental variable. Bryan's (1974) is probably the earliest observational study of this type. She reported attending to be significantly higher and nonattending significantly lower for children with LD in the resource room than the regular class. The variation, however, was simply attributed to class size. Only three other observational studies (Haynes

& Jenkins, 1986; Samuels & Miller, 1985; Sherry, 1982) have reported some data on classroom setting, which, taken together, lend support for Bryan's findings.

Type of instruction (teacher directed versus seatwork) is another contextual variable that has received some attention in observational studies of children with LD across settings. Rieth (1983) found similar patterns for engagement and disruption in both the regular class and the resource room for type of instruction: children with LD were more highly engaged during direct instruction and more disruptive during seatwork. Also, during direct instruction, children were more likely to be engaged if in the resource room than in the regular class; meanwhile, during seatwork, they were more likely to be engaged if in the regular class. If the former finding is attributable to smaller class size of the resource room, the later finding cannot be so easily explained. In fact, since lower rates of attending were found for seatwork overall, one should expect that in the larger classes students with attentional problems would be even less likely to attend during seatwork.

Only two other studies (Samuels & Miller, 1985; Walter, 1983) report data on type of instruction for children with LD, but just for the resource room. While they confirm the

direction of Rieth's finding for direct instruction versus seatwork, there is wide variation in the actual percent of engagement reported for each of the types of instruction in the three studies. Given the emphasis on independent work done by children in the elementary school (Brophy & Good, 1986) more definitive data on student engagement within this context of instruction is needed.

Peer influence is a third setting variable that has been researched in two studies. Walter (1983) reported that when total attending for the regular class was at 80% or higher, attending of children with LD was 87%; when it was below 80%, children with LD attended only 62% of the time. Forness and Esveldt (1975) also found that the level of handicapped youngsters' disruptive behavior seemed to vary with that of their peers with whom they were grouped. Peer influence may then have a potent if not clearly defined influence on the rate of attending of children with LD.

The purpose of the present study was twofold: to add to the empirical data suggesting that attentional behavior in children with LD is highly sensitive to situational factors rather than a stable deficit, and to identify which instructional environments are associated with significant variation. Although sparse, previous research pointed to three such important context variables: classroom setting,

type of instruction, and peer influence. First, we predicted that during academic instruction, children with LD would be significantly more on-task and less off-task in the resource room than the regular class. Second, engagement during teacher directed instruction would always be higher than during independent work across classroom settings, and for seatwork, it would be higher in the resource room as opposed the regular class. Finally, when the average rate of attending for the entire regular class is above and below 75%, the academic engagement of children with LD will vary significantly and in the same direction as the entire class.

Method

Setting

The study was conducted in a school district in New York City. The district was classified as racially isolated (85% Black and 15% Hispanic), economically disadvantaged (all schools Chapter I eligible; 79% low income children) and below grade level in reading. In addition, due to poor academic achievement and attendance, every school was required to file a Comprehensive Assessment Report (CAR), or improvement plan, with the State Commissioner of Education. The district's demographic data also indicated that it was in a geographic area typified by a high incidence of crime,

drug abuse, unemployment, and welfare. Data were collected at 3 sites, all elementary schools selected in consultation with district personnel as representative of the district in terms of city wide achievement scores in reading and mathematics and in ethnic composition.

Observations were conducted in regular classes and resource rooms. Resource instruction was conducted in a separate classroom. Children with LD were given special supplementary instruction in these rooms on a regularly scheduled basis. While regular class size varied between 25 and 32 children, there were 4 or 5 children present in each of the resource rooms.

The distribution of targeted children with LD within the regular classrooms determined the total number of those classes observed, which amounted to 14. All of the resource rooms allocated to each of the schools were observed, for a total of 8.

All of the resource room and regular classroom teachers of targeted students participated in the study. However, their decision was voluntary. Only the resource room teachers were offered compensation for participating, in the form of consultation on learning problems of children with LD the following year based on current findings.

Subjects

Students were considered for the sample only if they were currently certified as learning disabled and receiving resource room services for less than 50% of the school day. Children so classified met the definition of Specific Learning Disability as stated in Public Law 94-142 (Federal Register, 1977) and Part 200.1 of the New York State Regulations of the Commissioner of Education (1982).

Resource room teachers were asked to identify all such certified children who met the following criteria: (a) parental consent could be obtained, (b) attendance was regular, and (c) children were being instructed by the same regular classroom teachers for a minimum of the previous six months. The initial sample for the 3 schools then consisted of 36 children. However, due to teacher and student absenteeism and administrative changes in school schedules (for example, special assemblies and class trips), it was possible to complete observations for only 24 of these children, which constituted the final sample.

The sample then consisted of 3 children from the second grade, 7 from the third grade, 8 from the fourth grade, and 6 from the fifth grade. Eighteen of the students were male and 6 were female. They ranged from 8 to 12 years of age, with a mean of 10. The mean full scale WISC-R score for the

sample was 88.1 (SD = 11.43; Range = 64 to 111). All students in the sample were receiving one hour of instruction each day in a resource room.

Data Collection Procedure

Schedule of data collection. Classroom observations began in mid-April and continued through the first week of June. All observations were scheduled randomly across days of the week but only in the morning when reading or language arts was being taught, so as to be a representative sample of that subject matter and as typical of regular instruction in those classrooms observed as could be obtained.

Classroom procedures for data collection. During each observation, the data collector's attention was focused on one or two target students, the teacher, and the class as a whole. The observer recorded one student's behavior occurring at the moment of an auditory signal on the cassette tape. If two children were being observed in the same class, their behaviors were recoded alternately. There was a 30 second interval between each point sampling during which the observer recorded the student behavior as well as classroom setting events relating to the class as a whole and the sample students. In addition, the observer scanned the entire class at every fifth interval and recorded a percentage estimate of appropriate class involvement with

the lesson.

Interobserver reliability. Reliability checks were conducted randomly during the total data collection period. Two observers listened to the same cassette player signaling recording intervals by using a Y-plug. A reliabilty coefficient was computed by dividing each of the observers exact agreements by the total number of agreements and disagreements for each occurrence of a sampled students behavior. The overall reliability was 83.59% with a range of from 81.33% to 84.68%. A separate reliability check for the scans revealed an overall agreement of 95.06% with a range of from 91.18% to 100%. (One observation was omitted from the analysis because only 12 scan behaviors were recorded.)

Instrument

The Coding System for Task-Orientation and Classroom Setting (CSTOCS) is an observational system that employs both point-time and event sampling methods (Powell, J., 1984; Powell, J, Martindale, & Kulp, 1975; Tyler, S., 1979). Point-time sampling is used to record student behaviors and event sampling is used to identify the classroom setting variables in which they are occurring.

Student behaviors. Student behavior is conceptually related to task orientation during an academic instruction in the CSTOCS system. CSTOCS includes only behaviors that have been identified as validly measuring attention with existing observational instruments (Byran & Wheeler, 1972; Forness & Esveldt, 1975; Gettinger & Fayne, 1982; Marliave, Fisher, Filby, & Dishaw, 1977; McKinney & Feagans, 1980; Rieth, 1983; Samuels & Miller, 1985; Schumaker, Sheldon-Wilgren, & Sherman, 1980; Slate & Saudargas, 1986; Stanley & Greenwood, 1981; Walter, 1983). However, the design of CSTOCS allows for more refined classifications of attending behavior than was possible in studies using other observational instruments.

Thirteen mutually exclusive behaviors that together are all inclusive for attending during academic classroom lesson are represented in the observational form: writing (W), playing games (G), reading aloud (RA), reading silently (RS), talking appropriately (TA), answering (ANS), asking (ASK), raising hand (RH), looking (L), looking for materials (LM), disruptive (d), self-stimulating (ss), and gazing (g). A brief description of each of these appears in Table 1.

The coding system allows for the relating of these discrete behaviors to molar categories of task orientation. The first such category represents task-oriented behaviors,

which may be appropriate (W, G, RA, RS, TA, ANS, ASK, RH, L, LM), inappropriate (d, ss, g), or approved by the teacher but inappropriate to the class's learning task at hand (W, G, RA, RS, TA, ANS, ASK, RH, L, LM). A second category, referred to as "wait time," includes all self-initiated behaviors when the teacher fails to provide the child with clear direction as to the nature of a task demand. This occurs most commonly when the child finishes a seatwork assignment before the other students. The third molar category encompasses academic (strictly related to the learning of an academic skill) and management (social skills and procedural details of handling learning materials) behaviors for ANS, ASK, RH, and L. This categorization scheme was adapted, in part, so that previous findings in which student responding was not related to academic success (e.g., Thurlow, Graden, Greener, & Ysseldyke, 1983) might be clarified.

Insert Table 1 about here

Classroom setting variables. Additional literature identifying classroom setting variables thought to be related to variations in student attending behavior was also searched (Berliner, 1983; Gump, 1969, 1971). Setting variables included in the CSTOCS observation form are

instructional unit, type of instruction (direct instruction or seatwork), teacher focus of instruction (entire class, small group, individual), materials, class level of engagement, and time of change in method of instructional presentation or content. A brief description of each of these in Table 2. Event sampling was used for all setting variables, except the class level of engagement, which was point sampled by scanning the entire class at every fifth recording interval. A 0%, 25%, 50%, 75%, or 100% was then coded for the degree of appropriate class involvement with the activity hand. As such, both academic and management activities were considered mutually when observers evaluated the level of class engagement.

Insert Table 2 about here

Amount and Distribution of Data Collected

Each targeted child was observed on 3 separate days over the data collection period. A complete set of data for a child consisted of 2 observations in the regular classroom and 2 in the resource room. In sum, there were a total of 96 observations for the sample of 24 children. The total observation time was 5,124 minutes.

Each child was observed overall for an average 213.5 minutes, with a range of from 143.0 to 267.0. There were a total of 5,804 data points collected for student behavior. The actual number of data points collected for each child depended on whether or not two children were yoked for an observation, which varied the recording interval from every 30 to 60 seconds per child. The average number of data points recorded per child was 241.8, with a range of from 111.0 to 369.0.

Data Analysis Procedure

Student behaviors were analyzed in terms of frequency of occurrence of behavior. Total frequencies in each category were computed and then converted into percentages by dividing the frequencies by the total number of observation intervals. Once these data summaries were obtained, the data were analyzed.

(A more detailed description of the methodology is reported in Technical Report 152 and is available from the first author.)

Results

Academic Engagement

We defined academic engagement as all activities directly related to learning of the content or material at hand, during the observed class; in effect, this meant the aggregated behaviors W, G, RA, RS, TA, ANS, ASK, RH, L, and LM (see Table 1). Therefore, management behaviors, even if approved by the teacher, were excluded from the analysis.

Mean percentages of academic engagement (Table 3) were analyzed with a 2 X 2 (Classroom Setting X Type of Instruction) analysis of variance. Main effects were found for both classroom setting, F (1, 131) = 33.951, $p < .001$, MSe = 13777.359, and type of instruction F (1, 131) = 8.729, $p < .01$, MSe = 3542.081. There were no interaction effects. These results indicate that children with LD are significantly more engaged in learning activities in the resource room as compared to the regular class and during teacher directed instruction when compared to seatwork.

Insert Table 3 about here

More importantly, while differences in engagement for type of instruction were significant in both the regular class and the resource room, the difference in actual time between teacher directed instruction and seatwork varied markedly between classroom settings. That is, students in

the regular class were engaged much more often during direct instruction than during seatwork, while there was a small real time difference between rates of engagement in the resource room. Expressed as a proportion of the two percentages for type of instruction in the regular class, students were engaged 22% less of the time during seatwork; in the resource room, the difference in engagement was only 8%, favoring direct instruction. This finding indicates that type of instruction was a more critical ecological variable within the regular class than in the resource room.

Off-Task Behavior

Off-task behavior was defined as the aggregation of disruption, gazing, and self-stimulation.

A 2 x 2 (classroom setting x type of instruction) was used to determine if statistical difference existed in the amount of off-task behavior in the regular class and the resource room, and whether differences existed in the amount of off-task behavior exhibited in the two instructional conditions (teacher directed versus seatwork). Mean percentages and standard deviations for the four groupings are reported in Table 4.

Insert Table 4 about here

Students were off-task 15.6% of the time during direct instruction and 25.9% of the time during seatwork. The difference was not statistically significant, F (1, 131), $p > .05$, $MSe = 761.812$. The mean percentage of off-task behavior in the regular class was 29.0% and in the resource room was 9.0%. This difference was statistically significant, F (1, 131), $p < .001$, $MSe = 10737.921$. No interaction effects were found. In effect, children were off-task more often in the regular class than the resource room regardless of the type of instruction. However, it should be noted that, complementing the finding for academic engagement, the proportion of time students were off-task in the regular class during seatwork was much greater than during direct instruction. In this instance, off-task behavior was 27% less for direct instruction.

A second analysis of variance was performed in an attempt to refine the definition of off-task behavior. Disruption, as one of the three behaviors used to operationalize the dependent measure, was dropped in this analysis, leaving only self-stimulation and gazing. Disruption always involved at least one other child. It was not possible to tell from the coding, however, which child was responsible for initiating the disruptive behavior. Consequently, off-task behavior as originally operationalized may have been a function of the targeted

child's attention drifting from the task at hand or of external circumstances that would make an attribution to attentional problems inaccurate. For example, if a nontargeted child provoked off-task behavior by shoving the child being observed, only disruption would have recorded for the targeted child's response at the moment of sampling.

Results of this analysis were the same as for the previous one, with only a significant main effect for type of setting. What is revealing, however, is the difference in percentages of off-task behavior for the two measures. When attentional drift is more accurately identified, as in the second analysis, subjects in the regular class are off-task 19.7% of the time during direct instruction and 23.1% of the time during seatwork. This compares with 24.3% and 33.1% for direct instruction and seatwork, respectively, when disruption is included as part of the criterion. As the measure of inattention is refined, then, it appears that children with LD are less off task due to an inability to concentrate. It should be kept in mind, though, that some of the behavior coded as disruption did reflect the targeted child's drifting off task.

Peer Influence

The degree of peer involvement in the lesson defined classroom atmosphere for learning and was measured with the CSTOCS' "scan" category, defined previously as the percent of class engagement in both academic and management activities.

Mean percentages of academic engagement for children with LD were compared when the entire class was coded above and below the 75% level of engagement. The analysis was a 2 X 2 (Peer Influence X Type of Instruction) analysis of variance. There was no main effect for type of instruction, F (1, 68) = 3.131, $p < .10$, MSe = 1662.086. Percent of engagement did differ significantly for peer influence, F (1, 68) = 11.259, $p < .001$, MSe = 5977.125. When the class was above the 75% level during direct instruction, children with LD were academically engaged 71.32% of the time; but, when below 75%, sample children were engaged only 51.31% of the time. Similarly, for seatwork, when the class was above 75%, targeted children were engaged 60.14% of the time, but only 42.54% of the time when the class was below 75%. These contrasting percentages within each type of instruction illustrate the wide range of attentional variation under different setting conditions. It is also important to note that the effect for type of instruction found previously did

not obtain in this analysis, when type of instruction was analyzed within each of the two levels of peer influence. Classroom atmosphere, then, has a powerful influence on attention-to-task for children with LD.

Discussion

Findings from the present study indicate that attention-to-task of children with LD is highly variable and that it is related to the the particular learning environment in which it occurs. We found that children with LD were always significantly more academically engaged and exhibited less attentional drift in the resource room than in the regular class. In fact, their rate of academic engagement in the resource room was almost identical to that of children without handicaps in the regular class, as reported in two recent studies (Chow, 1981; Walter, 1983). While demonstrating the lability of attentional behavior for these students, this is not a surprising educational finding in itself, given the large difference in student/teacher ratios between the two settings. However, this simple explanation for the finding masks the role of underlying context variables operating within the class size effect.

We found, for example, that academic engagement was significantly higher during teacher directed instruction than during seatwork within both classroom settings. Rieth's (1983) findings for type of instruction within settings were in the same direction, too. The difference was dramatic only in the regular class, though, where children with LD were engaged only about three-fourths as often in seatwork as in direct instruction. When considering opportunity to learn during a school day, this finding reveals certain children are put at a serious disadvantage.

Also, engagement was significantly higher for children with LD when entire class engagement was high. In fact, when 75% or more of their peers without handicaps were involved in appropriate classroom activities, children with LD were engaged almost as frequently during seatwork (60.1%) as they were overall for teacher directed instruction (62.5%), in the regular class. Peer influence also appears to operate within type of instruction. When classroom atmosphere was either positive or negative for learning, as defined in this study, differences for direct instruction and seatwork were not significant. Clearly, the effect of peer influence as a context variable cannot be underestimated when defining the amount of time a child with LD will be engaged academically.

While findings of the present study were based on a large sample of observations, the actual amount of time students with LD are engaged during direct instruction and seatwork varied from the other studies reporting this kind of data (Rieth, 1983; Samuels & Miller, 1985; Walter, 1983). One reason for the discrepancy may be the type of sample selected. The current sample was highly homogenous; all children were chosen was from schools in a large urban educational system with average reading scores below the city-wide level. This sample was different from that in the other studies. It is possible that in smaller school systems, and even in large school systems with populations at or above grade level, instructional and system practices may vary so that different results for academic engagement would obtain.

Another important finding at variance with the one other study reporting similar data concerns comparative rates of direct instruction and seatwork engagement. In Rieth's (1983) study not only was the discrepancy between direct instruction and seatwork large in the resource room and small in the regular class, opposite the trend in data reported here, but engagement during seatwork was actually higher in the regular class than the resource room. Since seatwork is less likely to be monitored than direct instruction, particularly in the regular class, where one

teacher may be responsible for approximately 30 children working independently, our finding makes more intuitive sense. However, additional empirical data is needed to support any conclusion.

When learning problems such as attentional deficits are considered to originate within the child (Dykman, Ackerman, Clements, & Peters, 1971), suggestions for remediation often require specialized programs or classroom strategies not readily assimilable into regular education teachers' instructional styles. If attention-to-task is malleable and a function of the context in which it occurs, though, as this and other studies cited appear to indicate, then practical means for remediation may be possible within existing classroom settings and without requiring marked changes in teacher behaviors.

The resource room program, for example, is designed to provide supplemental instruction to children with LD. However, when these children are out of the regular class, they miss content and continuity that is part of the curriculum for their mainstreamed peers. The decision then needs to be made about when is the least disruptive time to remove a child from mainstream instruction. Pulling the child out during periods of "down time" (i.e., seatwork) in the regular class would help to minimize the effect of

missing instruction and reduce the need for the regular class teacher to accomodate atypical behavior. Also, resource room instruction need not exclusively reflect content. The special education teacher, when aware of a child's attentional difficulty within a particular educational environment, such as seatwork, can institute a program for modifying the behavior, along with supplemental instruction in content.

Findings from the present study also suggest that global assessments of student competencies and resultant suggestions for remediation may be misleading, even when based on observational data. Evaluations of behavior averaged across the school day or even within a particular subject area need to be refined by considering more meaningful instructional units. In addition, comparative data for mainstreamed students is essential for objectively defining the level at which children with handicaps are performing. For example, Bryan (1974) found that students with LD engaged in attending behaviors significantly more in the resource room than did students without handicaps in the regular classroom.

Nevertheless, questionnaires, teacher ratings, and specific skills tests are still used widely for diagnosing attentional problems and making decisions regarding

classification (Brown, 1986; Kuehne, Kehle, & McMahon, 1987). If school psychologists are to provide consultation and performance information for practical instructional planning, they need to go beyond testing and current techniques of classroom observation.

Finally, the current study indicates the inappropriateness of treating behavioral manifestations of attentional deficiency as a characteristic of the LD diagnostic category. It may be necessary to examine qualities thought to define other handicapping conditions, as well, for stability over time and within broad settings. Social maladjustment, defined in various ways, is considered to be stereotypical behavior for children classified within several disability categories (Salvia & Munson, 1986). However, students who appear unable to interact positively with mainstream peers in one educational environment, may be perfectly able to do so with the same peers in other settings (MacMillan, 1982).

In sum, we have found variation rather than stability in attention to be typical of our sample. Researchers, though, must continue to examine the extent of variation in attention of children with LD. We also found that this variation was related to situational contexts. However, there appear to be a number of other possible educational

contexts that need to be considered for a fuller appreciation of the nature of the problem of attentional deficiency and remediation (Berliner, 1983; Chow, 1981; Krupski, 1985; Samuels & Miller, 1985; Walter, 1983). Such research may make it necessary for the field to rethink its categorical conceptualizations of disability and the consequent recommendations made for remediation.

References

Adelman, H.S. & Taylor, L. (1986). An introduction to learning disabilities. Glenview, IL: Scott, Foresman and Company.

Berliner, D.C. (1979). Tempus educare. In P.L. Peterson and H.J. Walberg (Eds.), Research on teaching: Concepts, findings, and implications (pp. 120-135). Berkeley, CA: McCutchan.

Berliner, D.C. (1983). Developing conceptions of classroom environments: Some light on the T in classroom studies of ATI. Educational Psychologist, 18, 1-13.

Brophy, J.E., & Good, T.L. (1986). Teacher behavior and student achievement. In M.C. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 328-375). New York: Macmillan.

Brown, R.T. (1986). Teacher ratings and the assessement of attention deficit disordered children. Journal of Learning Disabilities, 19, 95-100.

Bryan, T.S. (1974). An observational analysis of classroom behaviors of children with learning disabilities. Journal of Learning Disabilities, 7, 35-43.

Bush, W. & Waugh, K.W. (1982). Diagnosing learning problems (3rd ed.). Columbus, OH: Charles E. Merrill Publishing Company.

Byran, T.S., & Wheeler, R. (1972). Perception of learning

disabled children: The eye of the observer. Journal of Learning Disabilities, 5, 37-41.

Cherry, R.C., & Kruger, B. (1983). Selective auditory attention abilities of learning disabled and normal achieving children. Journal of Learning Disabilities, 16, 202-205.

Chow, S.H.L. (1981). A study of academic learning time of mainstreamed learning disabled students. Final report to Bureau of Education for the Handicapped, U.S. Office of Education, Washington, DC, Grant No. G007902007. San Francisco, CA: Far West Regional Laboratory for Educational Research and Development. (ERIC Document Reproduction Service No. ED 216 467)

Copeland, A.P., & Reiner, E.M. (1984). The selective attention of learning-disabled children: Three studies. Journal of Abnormal Child Psychology, 12, 455-470.

Copeland, A.P., & Wisniewski, N.M. (1981). Learning disability and hyperactivity: Deficits in selective attention. Journal of Experimental Child Psychology, 32, 88-101.

Dykman, R.A., Ackerman, P.T., Clements, S.D., & Peters, J.E. (1971). Specific learning disabilities: An attentional deficit syndrome. In H.R. Myklebust (Ed.), Progress in learning disabilities (Vol. 2, pp. 56-93). New York: Grune & Stratton, Inc.

Dykman, R.A., Ackerman, P.T., Holcomb, P.J., & Boudreau, A.Y. (1983). Physiological manifestations of learning disability. Journal of Learning Disabilities, 16, 46-53.

Doyle, R.B., Anderson, R.P., & Halcomb, C.G. (1976). Attention deficits and the effects of visual distraction. Journal of Learning Disabilities, 9, 59-65.

Federal Register (December, 1977). 42, 65082-65085.

Fisher, C.W., Filby, N.N., Marliave, R., Cahen, L.S., Dishaw, M.M., Moore, J.E., & Berliner, D.C. (1978). Teaching behaviors, academic learning time and student achievement: Final report of Phase III-B, Beginning Teacher Evaluation Study (Technical Report V-1). San Francisco, CA: Far West Regional Laboratory for Educational Research and Development. (ERIC Document Reproduction Service No. ED 183 525)

Forness, S.R., & Esveldt, K.C. (1975). Classroom observation of children with learning and behavior problems. Journal of Learning Disabilities, 8, 49-52.

Fredrick, W.C., & Walberg, H.J. (1980). Learning as a function of time. Journal of Education, 73, 183-194.

Garfinkel, B.D. & Klee, S.H. (1985). Behavioral and personality characteristics of adolescents with a history of ADD. In L.M. Bloomingdale (Ed.), Attention deficit disorder: Identification, course and rationale (pp.17-32). Jamaica, NY: Spectrum Publications, Inc.

Gettinger, M., & Fayne, H.R. (1982). Classroom behaviors during small group instruction and learning performance in learning disabled and nondisabled children. Journal of Educational Research, 75, 182-187.

Greenwood, C.R., Delquardi, J., & Hall, R.V. (1984). Opportunity to respond and student academic performance. In W.L. Heward, T.E. Heron, J. Trap-Porter, & D.S. Hill (Eds.), Focus upon behavior analysis in education (pp. 58-88). Columbus, OH: Charles Merrill.

Gump, P.V. (1969). Intra-setting analysis: The third grade classroom as a special but instructive case. In E.P. Willems & H.L. Raush (Eds.), Naturalistic viewpoints in psychological research (pp.200-220). New York: Holt, Rinehart and Winston.

Gump, P.V. (1971). What's happening in the elementary classroom? In I. Westbury & A. Bellack (Eds.), Research into classroom processes (pp. 155-166). New York: Columbia University, Teachers College Press.

Haynes, M.C., & Jenkins, J.R. (1986). Reading instruction in special education resource rooms. American Educational Research Journal, 23, 161-190.

Krupski, A. (1985). Variations in attention as a function of classroom task demands in learning handicapped and CA-matched nonhandicapped children. Exceptional Children, 52, 52-56.

Kuehne, C., Kehle, T.J., & McMahon, W. (1987). Differences between children with attention deficit disorder, children with specific learning disabilities, and normal children. Journal of School Psychology, 25, 161-166.

MacMillan, D. (1982). Mental retardation and society (2nd ed.). Boston: Little, Brown and Company.

Marliave, R., Fisher, C.W., Filby, N.N., & Dishaw, M.M. (1977). The development of instrumentation for a field study of teaching (Technical Report I-5). San Francisco, CA: Far West Regional Laboratory for Educational Research and Development. (ERIC Document Reproduction Service No. ED 151 378)

McKinney, J.D., & Feagans, L. (1980). Learning disabilities in the classroom. Final report to Bureau of Education for the Handicapped, U.S. Office of Education, Washington, DC, Grant No. G00-76-05224. Chapel Hill, NC: University of North Carolina at Chappel Hill, Frank Porter Graham Child Development Center.

Pelham, W.E. (1979). Selective attention deficits in poor readers? Dichotic listening, speeded classification, and auditory and visual central and incidental learning tasks. Child Development, 50, 1050-1061.

Regulations of the Commissioner of Education (1982). Handicapped Children (Subchapter P, Part 200). Albany: The State University of New York, The State Education

Department, Office for Education of Children with Handicapping Conditions.

Rieth, H.J. (1983). An analysis of the impact of instructional time within different service delivery systems on the academic achievement of mildly handicapped children. Final report to Special Education Programs, U.S. Department of Education, Washington, DC, Grant No. G008001876. Bloomington, IN: Indiana University, Center for Innovation in Teaching the Handicapped.

Salvia, J. & Munson, S. (1986). Attitudes of regular education teachers toward mainstreaming mildly handicapped students. In C.J. Meisel (Ed.), Mainstreaming handicapped children: Outcomes, controversies, and new directions (pp. 111-128). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Samuels, S.J., & Miller, N.L. (1985). Failure to find attentional differences between learning disabled and normal children on classroom and laboratory tasks. Exceptional Children, 51, 358-375.

Schumaker, J.B., Sheldon-Wildgen, J., & Sherman, J.A. (1980). An observational study of the academic and social learning behaviors of learning disabled adolescents in the regular classroom (Report No. 22). Lawrence, KS: University of Kansas, Institute for Research in Learning Disabilities.

Sherry, L. (1982). Non-task oriented behaviors of educable mentally retarded, emotionally handicapped and learning

disabled students. Educational Research Quarterly, 6(4), 19-29.

Slate, J.R., & Saudargas, R.A. (1986). Differences in learning disabled and average students' classroom behaviors. Learning Disability Quarterly, 9, 61-67.

Smyth, W.J. (1984). Time, achievement and teacher development. In L.W. Anderson (Ed.), Time and school learning (pp.128-142). London: Croom Helm.

Stanley, S.O., & Greenwood, C.R. (1981). CISSAR: Code for instructional structure and student academic response: Observer's manual. Kansas City, KS: Junipier Gardens Children's Project, Bureau of Child Research, University of Kansas, Lawrence.

Tarver, S.G., Hallahan, D.P., Cohen, S.B., & Kauffman, J.M. (1977). The development of visual selective attention and verbal rehearsal in learning disabled boys. Journal of Learning Disabilities, 10, 491-500.

Thurlow, M., Graden, J., Greener, J., & Ysseldyke, J. (1983). LD and non-LD students opportunities to learn. Learning Disability Quarterly, 6, 172-183.

Walter, G.A. (1983). Special education programs in District 27: Teacher activity, student activity, student time on task, and program structure. Unpublished manuscript, St. John's University, New York. (ERIC Document Reproduction Service No. ED 238 214)

Table 1

Categories of Observation for Student Behaviors

Category	Brief Description
Writing	marking task material with pen or pencil
Game	playing game consistent with instruction
Reading aloud	looking at written material and reading aloud what is written in print
Reading silently	looking at reading material for at least 2 seconds, and/or eye or lip movements indicate that the child is scanning the material.
Talking appropriately	verbalizing about a topic appropriate to instruction during free or break time.
Answering question	replies or attempts to reply to the teacher's question
Asking question	asks teacher a question
Raising hand	hand raised in order to get teacher's attention

table continues

Category	Brief Description
Looking	looking at teacher giving direction or commands, the chalk board, or at another student asking or answering a question.
Looking for materials	looking for materials essential for task completion
Disruptive	involved in aggressive or distracting behaviors that includes other children
Self-stimulating	active behaviors demonstrating self-involvement
Gazing	looking away from the instructional task at hand

Note. All behaviors are coded separately for academic and management activities, wait time, and for whether the teacher approved or did not approve them, or approved them though they were not relevant to the task-at-hand.

Table 2

Categories of Observation for Setting Variables

Category	Brief Description
Instructional unit	defined by the content of the lesson (e.g., reading, social studies, etc.)
Type of instruction:	
a)direct instruction	teacher actively directs and structures the lesson; e.g., lectures, questions, reviews, etc.
b)seatwork	students are expected to work on their own and the teacher intervenes only to provide feedback in order to keep children working independently
Focus of instruction	direct instruction is provided to either the entire class, a portion of the class while the rest of the class is engaged in some other activity, or an individual
Materials	material used by the students as part of the lesson (e.g., worksheet, reader, paper and pencil, etc.)

table continues

Category	Brief Description
Class level of engagement	degree of student involvement in the lesson, indicated as a percent of the entire class exclusive of the target child

Table 3

Mean Percentages of Academic Engagement by Setting and Type of Instruction

	Type of Instruction								
	Teacher Directed			Independent			Total		
Setting	M	SD	n	M	SD	n	M	SD	n
Regular									
Classroom	62.49	21.65	34	49.03	26.63	39	55.30	25.20	73
Resource									
Room	81.19	12.47	46	74.32	15.79	16	79.42	13.61	62
Total	73.24	19.26	80	56.38	26.51	55	---	---	135

Table 4

Mean Percentages of Off-Task Behavior by Setting and Type of Instruction

	Type of Instruction								
	Teacher Directed			Independent			Total		
Setting	M	SD	n	M	SD	n	M	SD	n
Regular									
Classroom	24.29	18.62	34	33.13	24.93	39	29.02	22.51	73
Resource									
Room	9.18	9.65	46	8.39	9.90	16	8.98	9.64	62
Total	15.60	15.95	80	25.94	24.36	55	--	--	135